Common Core State Standards for Mathematics			
Domain: Congruence			
Transformations (experiment with transformations in the plane) (G-CO)			
High School			
Score 4.0	**In addition to Score 3.0, in-depth inferences and applications that go beyond instruction to the standard. The student will:**		**Example Activities**
	3.5	In addition to score 3.0 performance, in-depth inferences and applications with partial success.	
Score 3.0	**The student will:** • specify the sequence of transformations that will carry a given figure onto another (G-CO.5) • describe transformations as functions that take points in the plane as inputs and give other points as outputs (G-C0.2) • describe the rotations and reflections that carry a given rectangle, parallelogram, trapezoid or regular polygon on to itself (G-CO.3) • develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments. (G-CO.4) **The student exhibits no major errors or omissions.**		Transformation Descriptions using Manipulatives – Students will be given a copy of a blank Cartesian Plane as well as two congruent manipulatives one red and one blue in color. The teacher will provide the students with multiple scenarios listing out specific directions on where to place each manipulative on the Cartesian Plane. The students will then be tasked to describe what transformations will be needed and in what order so that the red manipulative lay directly on top of the blue manipulative as a result of the described transformations. The teacher will check the accuracy of and provide specific feedback for each description before the student begins on the next scenario.
	2.5	No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content	

Score 2.0	**There are no major errors or omissions regarding the simpler details and processes as the student will:**
	• recognize or recall specific vocabulary, such as:
	  ○ angle, circle, perpendicular line, parallel line and line segment (based on the undefined notions of point, line, distance along a line and distance around a circular arc) (G-CO.1)
	  ○ rotations, reflections and translations
	• performs basic processes, such as:
	  ○ represent transformations in the plane using, e.g., transparencies and geometry software (G-CO.2)
	  ○ compare transformations that preserve distance and angle to those that do not (e.g., translation vs. horizontal stretch) (G-CO.2)
	  ○ given a geometric figure and a rotations, reflection, or translations, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software (G-CO.5)
	
	However, the student exhibits major errors or omissions regarding the more complex ideas and processes.
			Geometer's SketchPad Transformations – Each student will use an individual computer and the Geometer's Sketchpad software. The teacher will present a scenario with specified shapes and a verbal description of a specified transformation. The students will perform the described transformation using the computer software. The students will verify their transformation with a person seated next to them. Once the pair agrees upon a correct solution they will solicit the teacher's feedback. At this point the teacher will verify the accuracy of the pair's transformation and if accurate provide them with a new transformation. If inaccurate the teacher will provide specific feedback and the students will attempt the transformation again.

	1.5	Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content	
Score 1.0	**With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.**		

	0.5	With help, a partial understanding of the 2.0 content but not the 3.0 content	
Score 0.0	**Even with help, no understanding or skill demonstrated.**		